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Patent
266/118

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the Application of:	**Group Art Unit:** Not Yet Assigned
Stanton, et. al.	**Examiner:** Not Yet Assigned
Serial No.: Not Yet Assigned 10043615	
Filed: January 8, 2002	
For: Base-Modified Nucleotides and Their Use for Polymorphism Detection	

INFORMATION DISCLOSURE STATEMENT

BOX DD
Commissioner for Patents
Washington, D.C. 20231

Sir:

In accordance with 37 CFR §§ 1.97 and 1.98, the items identified in this Information Disclosure Statement ("IDS") are brought to the attention of the Office. The items are listed on the attached form PTO-1449 and copies are enclosed for the convenience of the Examiner.

The items identified in this IDS may or may not be "material" pursuant to 37 CFR § 1.56. The submission thereof by Applicant is not to be construed as an admission that any such patent, publication or other information referred to therein is material or considered to be material (37 CFR § 1.97(h)), or even qualifies as "prior art" under 35 USC § 102 with respect to this invention unless specifically designated by Applicant as such.

INFORMATION DISCLOSURE STATEMENT FILING PROVISION:

☒ This IDS is believed to be timely in that it is being submitted under 37 CFR § 1.97(b), that is (1) within three months of the filing date of the application, which is not a continued prosecution application

CERTIFICATE OF MAILING
(37 C.F.R. §1.10)

I hereby certify that this paper (along with any referred to as being attached or enclosed) is being deposited with the United States Postal Service on the date shown below with sufficient postage as 'Express Mail Post Office To Addressee' in an envelope addressed to the Commissioner for Patents, Washington, D.C. 20231.

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filed under § 1.53(d); or (2) within three months of entry of the national stage as set forth in 37 CFR § 1.491; or (3) before the mailing of a first Office action on the merits; or (4) before the mailing of a first Office action after filing a request for continued examination under § 1.114. Thus, no fee is required.

☒ However, if the undersigned is in error in this regard, Applicant respectfully requests that the Office consider this IDS as filed under 37 CFR § 1.97(c), if applicable, and charge the fee due under 37 CFR §1.17(p) to the deposit account referenced below.

☐ However, if the undersigned is in error in this regard, Applicant respectfully requests that the Office consider this IDS as filed under 37 CFR § 1.97(c), if applicable, and a statement under 37 CFR § 1.97(e) is included below, thus no fee is required.

☐ This IDS is being submitted under 37 CFR § 1.97(c), that is after mailing of a first Office action on the merits, but before a Final Action under 37 CFR § 1.113 or a Notice of Allowance under 37 CFR § 1.311.

☐ The fee due under 37 CFR § 1.17(p) is submitted herewith.

☐ A statement under 37 CFR § 1.97(e) is included below, thus no fee is required. In the event that this IDS is not received before a Final Action or a Notice of Allowance, then Applicant respectfully requests that the Office consider the filing of these papers to be submitted under 37 CFR § 1.97(d) and charge the fee due under 37 CFR § 1.17(p) to the deposit account below.

☐ This IDS is being submitted under 37 CFR § 1.97(d), that is after a Final Action under 37 CFR § 1.113 or a Notice of Allowance under 37 CFR § 1.311, but before payment of the issue fee. A statement under 37 CFR § 1.97(e) is included below. The fee due under 37 CFR § 1.17(p) is submitted herewith.

STATEMENT UNDER 37 CFR § 1.97(e):

☐ Each item contained in this IDS was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of this IDS.

☐ No item contained in this IDS was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing this statement after making reasonable inquiry, no item of information contained in this IDS was known to any individual designated in 37 CFR § 1.56(c) more than three months prior to the filing of this IDS.

PAYMENT AND/OR AUTHORIZATION TO CHARGE FEES:

☐ A check in the amount of _____ is enclosed for the above fee(s).

☐ Please charge _____ to Deposit Account No. **12-2475** for the above fee(s).

The Commissioner is authorized to charge any fees required by the filing of these papers, and to credit any overpayment to Lyon & Lyon's Deposit Account No. **12-2475**.

Respectfully submitted,
LYON & LYON LLP

Dated: 2/1/02 By: _____
Bernard F. Rose
Reg. No. 42,112

22249

LYON & LYON LLP
633 W. Fifth Street,
Suite 4700
Los Angeles, CA
90071

FORM PTO-1449	ATTY. DOCKET NO.	SERIAL NO.
LIST OF PATENTS AND OTHER ITEMS FOR APPLICANTS INFORMATION DISCLOSURE STATEMENT	266/118	Not Yet Assigned
	APPLICANT: Vincent P. Stanton, Jr., M.D., et al	
(Use several sheets if necessary)	FILING DATE: January 8, 2002	GROUP: Not Yet Assigned

U.S. PATENT DOCUMENTS

EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB CLASS	FILING DATE
	AA	4,701,419	10-20-87	Morris	436	89	11-26-85
	AB	4,879,214	11-7-89	Kornher et al	435	91	11-15-88
	AC	5,003,059	3-26-91	Brennan	536	27	6-20-88
	AD	5,064,754	11-12-91	Mills	435	6	11-13-87
	AE	5,174,962	12-29-92	Brennan	422	78	6-20-89
	AF	5,187,085	2-16-93	Lee	435	91	9-28-90
	AG	5,221,518	6-22-93	Mills	422	62	8-13-91
	AH	5,332,666	7-26-94	Prober et al	435	91.5	10-22-91
	AI	5,424,184	6-13-95	Santamaria et al	435	6	5-8-91
	AJ	5,547,835	8-20-96	Köster	435	6	1-6-94
	AK	5,552,278	9-3-96	Brenner	435	6	7-25-94
	AL	5,580,733	12-3-96	Levis et al	435	6	9-6-94
	AM	5,605,798	2-25-97	Köster	435	6	3-17-95
	AN	5,622,824	4-22-97	Köster	435	6	2-10-95
	AO	5,691,141	11-25-97	Köster	435	6	6-6-95
	AP	5,700,642	12-23-97	Monforte et al	435	6	5-22-95
	AQ	5,830,655	11-3-98	Monforte et al	435	6	4-26-96
	AR	5,869,242	2-9-99	Kamb	435	6	9-18-95
	AS	5,939,292	8-17-99	Gelfand et al	435	91.2	8-5-97

FOREIGN PATENT DOCUMENTS

EXAMINER INITIAL		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB CLASS	TRANSLATION YES	TRANSLATION NO
	AT	WO98/00433	1-8-98	PCT				

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OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, etc.)		
	AU	Andersson, B. et al., "Simultaneous shotgun sequencing of multiple cDNA clones," DNA Sequence, **1997**, 7:63-70
	AV	Astatke, M., et al, "Deoxynucleoside triphosphate and pyrophosphate binding sites in the catalytically competent ternary complex for the polymerase reaction catalyzed by DNA polymerase I (Klenow fragment)," J. Biol. Chem., **1995**, 270: 1945-54.
	AW	Astatke, M., et al, "How *E. coli* DNA polymerase I (Klenow fragment) distinguishes between Deoxy-and Dideoxynucleotides," J. Mol. Biol., **1998**, 278:147-165.
	AX	Astatke, M., et. al, "A single side chain prevents *Escherichia coli* DNA polymerase I (Klenow fragment) from incorporating ribonucleotides," Proc. Nat. Acad. Sci. USA, **1998**, 95:3402-3407
	AY	Barnes, W.M., "DNA Sequencing by Partial Ribosubstitution," J. Mol.Bio., **1978**, 119:83-99
	AZ	Barnes, W.M., "PCR amplification of up to 35-kb DNA with high fidelity and high yield from λ bacteriophage templates," Proc. Natl. Acad. Sci. USA, **1994**, 91:2216-2220
	BA	Beavis, R., et al "Matrix-assisted laser desorption/ionization mass spectrometry of biopolymers," Anal. Biochem., **1991**, 63: 1193-1203
	BB	Chen, C. N., et al, "Ordered shotgun sequencing of a 135 kb Xq25 YAC containing ANT2 and four possible genes, including three confirmed by EST matches," Nucleic Acids Research, **1996**, 24:4034-4041
	BC	Daugherty P.S., et al., "Antibody affinity maturation using bacterial surface display," Protein Eng **1998**, 11:825-32,
	BD	Delarue, M., et al., "An attempt to unify the structure of polymerases," Protein Eng, **1990**, 3:461-467
	BE	Fichant, G. A. and Quentin, Y., "A frameshift error detection algorithm for DNA sequencing projects," Nucleic Acid Research, 23:2900-2908, **1995**
	BF	Fu, D. J., et al., "Sequencing exons 5 to 8 of the *p53* gene by MALDI-TOF mass spectrometry," Nature Biotechnology, **1998**, 16:381-384.
	BG	Giese, B., et al, "The chemistry of single-stranded 4'-DNA radicals: influence of the radical precursor o anaerobic and aerobic strand cleavage," Chemistry & Biology, **1995**, 2 No. 6, 367-375
	BH	Giese, B., et al, "The mechanism of anaerobic, Radical-Induced DNA strand scission," Angew. Chem. Int. Ed. Engl. **1993**, 32:1742-43.
	BI	Gish, G., et al "DNA and RNA Sequence Determination Based on Phosphorothioate Chemistry," Reports, **1988** 1520-1522
	BJ	Gupta and Kool, "A self-cleaving DNA nucleoside," Chem. Commun: **1997**, pp 1425 – 26
	BK	Harayama, S., "Artificial evolution by DNA shuffling," Trends Biotechnol., **1998**, 16:76-82
	BL	Hentosh, P. et al, "Ploymerase chain reaction amplification of single-stranded DNA containing a base analog, 2-Chloroadenine,". Anal. Biochem., **1992**, 201: 277-281.
	BM	Huang, Y., "Determinants of Ribose Specifity in RNA Polymerization: Effects of Mn^{2+} and Deoxynucleoide Monophosphate Incorporation into Transcripts," Biochemistry, **1997**, 36:13718-13728.
	BN	Joyce, C. M., "Choosing the right sugar: How polymerases select a nucleotide substrate," Proc. Natl. Acad. Sci. USA, **1997**, 94:1619-1622
	BO	Kaczorowski, T., et al., "Assembly of 18-nucleotide primers by ligation of three hexamers: secuqncing of large genomes by primer walking," Anal. Biochem., **1994**, 221:127-135;
	BP	Khurshid, F., et al, "Error analysis in manual and automated DNA sequencing," Analytical Biochemistry, 208:138-143, **1993**;
	BQ	Kirpekar, F., et al, "Matrix-assisted laser desorption-ionization mass spectrometry of enzymatically synthesized RNA up to 150 kDa," Nucleic Acids Research, **1994**, 22: No. 19 3866-3870

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	BR	Kristensen, T., et al, "An estimate of the sequencing error frequency in the DNA sequence databases," DNA Sequencing, 2:343-346, **1992**;
	BS	Landegren, U. et al., Reading Bits of Genetic Information: Methods for Single-nucleotide Polymorphism Analysis, Genome Research **1998**, 88:769-76.
	BT	Liu, D., et al., "Bi-stranded, multisite replication of a base pair between difluorotoluene and Adenine: confirmation by 'inverse' sequencing," Chem. Biol., 4:919-929, **1997**;
	BU	Lodhi, M. A., et al., "High-quality automated DNA sequencing primed with hexamer strings," Genome Research, **1996**, 6:10-18.
	BV	Martin-Gallardo, et al., "Automated DNA sequencing and analysis of 106 kilobases from human chromosome 19q13.3," Nature Genetics, **1992** 1:34-39.
	BW	Marx, A., et al, "Synthesis of 4'-*C*-Acylated Thymidines," Helv. Chim. Acta, **1966**, 79:1980-94
	BX	Maxam and Gilbert, "A new method for sequencing DNA" Proc. Nat. Acad. Sci. USA, 74, 560-564 **1977**
	BY	Moran, S., et al., "A thymidine triphosphate shape analog lacking Watson-Crick pairing ability is replicated with high sequence selectivity," Proc. Natl. Acad. Sci. USA, 94:10506-10511, **1997**.
	BZ	Nakamaye, K. et al, "Direct sequencing of polymerase chain reaction amplified DNA fragments through the incorporation of deoxynucleoside α-thiotriphosphates," Nucleic Acid Research, **1988**, 16:9947-9959
	CA	Nelson, R.W., et al, "Volatilization of High Molecular Weight DNA by Pulsed Laser Ablation of Frozen Aqueous Solutions," Science **1989**, Vol. 246, 1585-1587
	CB	Nickerson, D.A., "DNA sequence diversity in a 9.7-kb region of the human lipoprotein ilipase gene," Nature Genetics, **1998**, 223-240
	CC	Nordhoff, E. et al, "Comparison of IR- and UV-matrix-assisted laser desorption/ionization mass spectrometry of oligodeoxynucleotides," Nucleic Acids Research, **1994**, 22: No. 13, 2460-2465
	CD	Nordhoff, E. et al, "Ion stability of nucleic acids in infrared matrix-assisted laser desorption/ionization mass spectrometry," Nucleic Acids Research, **1993**, 21:No. 15 3347-3357
	CE	Olsen, D.B. et al, "[8] Direct sequencing of polymerase chain reaction products," Methods of Enzymology, Vol 218 pp 79-92, **1993**
	CF	Ono, T., et al., "2'-Floro modified nucleic acids: polymerase-directed synthesis, properties and stability to analysis by matrix-assisted laser desorption/ionization mass spectrometry," Nucleic Acids Research, **1997**, 25: 4581-4588.
	CG	Pedersen et. al., " A method for directing evolution and functional cloning of enzymes," Proc. Natl. Acad. Sci. USA, **1998**, 95:10523-8
	CH	Pieles, U, et al, "Matrix-assisted laser desorption ionization time-of-flight mass spectrometry: a powerful tool for the mass and sequence analysis of natural and modified oligonucleotides," Nucleic Acids Research, **1993**, 21:No. 14 3191-3196
	CI	Polesky et al., " Identification of residues critical for the polymerase activity of the Klenow fragment of DNA polymerase I from *Escherichia coli**," J. Biol. Chem., **1990**, 265:14579-91
	CJ	Pomerantz, S.C., et al., "Determination of oligonucleotide composition from Mass spectrometrically measured molecular weight," J. Am. Soc. Mass Spectrom., **1993**, 4: 204-209.
	CK	Prober, et al, "A System for Rapid DNA Sequencing with Fluorescent Chain-Terminating Dideoxynucleotides," Science **1987**, Vol. 238, 336-341
	CL	Sanger, et al., "DNA sequencing with chain-terminating inhibitors," Proc. Nat. Acad. Sci. USA, 74, 5463-5467 **1977**
	CM	Schneider, K. and Chait, B.T., "Increased stability of nucleic acids containing 7-deaza-quanosine and 7-deaza-adenosine may enable rapid DNA sequencing by matrix-assisted laser desorption mass spectrometry," Nucleic Acids Research, **1995**, 23: 1570-1575

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	CN	Siebenlist, et al., " Contacts between *Escherichia coli* RNA polymerase and an early promoter of phase T7," Proc. Natl. Acad. Sci. USA, **1980**, 77:122;
	CO	Siuzdak, G. "The emergence of mass spectrometry in biochemical research," Proc. Natl. Acad. Sci., **1994**, 91:11290-11297
	CP	Sousa, et al, "A mutant T7 RNA polymerase as a DNA polymerase," EMBO Journal Vol. 14 no. 18, pp. 4609-4621, **1995**
	CQ	Stemmer, W. P. C., "Rapid evolution of a protein *in vitro* by DNA shuffling," Nature, **1994**, 370:389-391.
	CR	Tabor, S., et al., "DNA sequence analysis with a modified bacteriophage T7 DNA polymerase," Proc. Natl. Acad. Sci. USA, **1987**, 84:4767-4771.
	CS	Venter, J. C., et al., "Shotgun sequencing of the human genome," Science, **1998**, 280:1540-1542;
	CT	Verdine, et al, "Immobilized Metal Affinity Chromatography of DNA," Dept. of Chemistry, Harvard University, **5/29/96**
	CU	Verdine, et al., "Template-Directed Interference Footprinting of Cytosine Contacts in s Protein-DNA Complex: Potent Interference by 5-Aza-2'-deoxycytidine;" Biochemistry, **1992**, 31:11265-11273
	CV	Verdine, et al., "Template-Directed Interference Footprinting of Protein-Adenine Contacts," JACS, **1996**, 118:6116-6120
	CW	Verdine, et al., "Template-Directed Interference Footprinting of Protein-Guanine Contacts in DNA;" JACS, **1991**, 113:5104-5106
	CX	Verdine, et al., "Template-Directed Interference Footprinting of Protein-Thymine Contacts," JACS, **1993**, 115: No.1 373-374
	CY	Voss, H., et al., "Automated low-redundancy large-scale DNA sequencing by primer walking," Biotechniques, **1993**, 15:714-721
	CZ	Wang, B. H., et al "Matrix-assisted laser desorption/ionization time-of-flight mass spectrometry of chemically modified oligonucleotides," Analytical Chemical, **1994**, 66: 1918-1924
	DA	Wang, B. H., et al, Sequencing of modified olignucleotides using in-source fragmentation and delayed pulsed ion extraction matrix-assisted laser desorption ionization time-of-flight mass spectrometry," Internat'l J. of Mass Spec. and Ion Process, **1997**, 169/170:331-350
	DB	Weber, J. L. "Human whole-genome shotgun sequencing," Genome Research, **1997**, 7:401-409
	DC	Williams, E. R., "Tandem FTMS of Large Biomolecules," Anal. Chem., **1998**, 70:179A-185A
	DD	Wu, K., et al, "Time-of-flight mass spectrometry of underivatized single-stranded DNA oligomers by matrix-assisted laser desorption," Anal. Chem, **1994** 66, 1637-1645

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